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EXAMINER	
BROWN, RUEBEN M	

ART UNIT	PAPER NUMBER
2623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/679,590	LINTON, JEB R.	
	Examiner	Art Unit	
	REUBEN M. BROWN	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-11 and 13-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1, 5-11, 13-18* is/are rejected.

7)☐ Claim(s) *2-4 and 19-24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims have been considered but are not persuasive.

Applicant's first argument as found on page 3, appears to be no motivation to combine the references. In particular, applicant argues, "…as in Sklar discussed above, the antenna 132 is discussed as a unit and any hypothetical construction, modification, reengineering and/or piecemeal dissection would be conjecture unsupported by the disclosure of Ayyagari…Further, neither Sklar nor Ayyagari provide any suggestion or motivation to combine the teachings thereof. Indeed, there is no suggestion or motivation in Sklar to replace or reengineer the tracking antenna 38. Similarly there is no suggestion or motivation in Ayyagari to replace or reengineer the staring beam antenna 132. Further, there is no apparent reason to combine Sklar and Ayyagari."

Examiner respectfully disagrees and first of all points out that Sklar does not at all limit itself to a parabolic antenna, it merely says that the antenna "typically takes the form of a parabolic dish", but in fact, "may or may not be parabolic", see col. 3, lines 7-15; col. 6, lines 1-10. Even though this point is conceded by applicant, on page 2, last paragraph, the applicant nevertheless argues as discussed above, that "any hypothetical construction of the tracking

antenna 38...would be conjecture". However, it is clear that by stating the antenna "may or may not be parabolic antenna", Sklar is suggesting that an antenna that is applicable "for in-flight reception of signals, utilizes tracking means and associated switching to continually adjust the pointing direction of the antenna", is modifiable for of its system, see Sklar col. 3, lines 12-18.

Thus turning to Ayyagari, it is pointed out that the instant reference teaches that it is directed to an antenna system for transmission/reception of broadband signals on board airborne vehicles (AV 106) using GPS and attitude, position & speed determination means that are used by the system to generate steering control signals for the antennas, see col. 5, lines 51-67 thru col. 6, lines 1-3. Therefore, Ayyagari is clearly combinable with Sklar. Ayyagari goes on to teach that the staring beam antenna 132 may be an RF beam antenna that may take the form of an electronically steered antenna, such as a PAA, i.e. phased array antenna, see col. 5, lines 45-50 & col. 6, lines 12-25.

Applicant asserts that the references do not provide any suggestion or motivation to combine. Again, examiner points out that Ayyagari provides several benefits to using phased array antennas. For example, Ayyagari discloses that the PAA's provide dedicated high data rate links for data transmission and are electronically steered by a phase controller for targeting, see col. 7, lines 25-28. Moreover, Ayyagari explicitly states that, "Rapidly steering the antenna boresight over wide angles is not practical using conventional high-gain dish…or any mechanically steered antennas because mechanical servos cannot perform at the speed described

above", see col. 7, lines 61-67. Therefore, contrary to applicant's argument, Ayyagari provides a clear motivation for improvement over Sklar.

As for the claimed, 'one-dimensionally electronically pointable antenna', the phased array antenna of Ayyagari meets the feature.

2. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "alternatively in closed-loop or open-loop operation") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's second argument concerns the recitation regarding open-loop and closed-loop mode. In particular, it is argued that even though Eguchi teaches open-loop and closed-loop operations that the instant reference discloses that the open-loop mode is always on, and is not switched off/on based on the signal level, and thus does not meet the claimed subject matter. However, it is respectfully pointed out that claim 1 merely recites, 'a signal lock for automatically activating and deactivating said closed-loop feedback system in response to…wherein said system is in open-loop operation when said closed-loop feedback system is deactivated and in closed-loop operation when said closed-loop feedback system is activated'. Thus, it is clear that applicant does not actually claim in a positive manner that the system is not in a closed-loop mode concurrent with an open-loop mode.

In other words, **the claim does state** in a positive manner that the closed-loop operation is activated and deactivated, **but does not state** in a positive manner that the open-loop operation is also activated **and deactivated**. Thus, the claim does not require that the system alternatively be in open-loop or closed-loop, as argued by applicant on page 5 of the response. The claim is still broad enough to read on being in open-loop operation at all times, while the closed-loop operation is activated and deactivated.

In light of the above arguments, the rejections mailed 8/23/2007 are maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4-6, 8-10, 11 & 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar (U.S. Pat # 5,990,928), in view of Ayyagari, (U.S. Pat # 6,018,659) and Eguchi, (U.S. Pat # 5,537,122).

Considering amended claims 1, 11 & 17, the claimed system for receiving broadcast satellite transmissions in one of air based, land based, and a sea based vehicle, comprising:

'an orientation system for determining at least a first orientation of the vehicle in three dimensions', reads on the operation of the aircraft inertial navigation system, INS which provides position and attitude data of the airplane to the controller 46, of Sklar, col. 8, lines 30-62.

'a controller communicating with the orientation system, which is adapted to receive the orientation data and receive a first location data corresponding to a first location of the vehicle relative to a predetermined positioning system, such that the controller utilizes the first orientation data and first location data to determine a first position control data', is met by the operation of the controller 46, which receives information data from the INS/GPS receiver, col. 8, lines 45-62.

As for the additionally claimed, 'one dimensionally electronically pointable antenna mounted upon a motorized turntable to provide two-dimensional pointing and adapted to receive the first position control data from the controller, resulting in the one dimensionally electronically pointable antenna being pointable in two-dimensions in an open-loop operation, so that a first broadcast satellite signal may be received according to the first position control data, from a satellite having a known location relative to the predetermined positioning system', Sklar teaches that the antenna 38 is pointed at one or more of the satellites 24 or 28 and continuously

steered by controller 46, according to the data received from its INS and/or GPS system, col. 6, lines 4-20 & col. 8, lines 45-62.

Regarding the specifically claimed one dimensionally electronically pointable antenna, Sklar discloses that the antenna 38 may or may not be parabolic, col. 3, lines 11-20, which suggests that antennas other than parabolic type may be used. Ayyagari provides a teaching using a phased array antenna (which reads on one dimensionally pointable antenna) for airborne vehicles, in order to track a target satellite, see col. 5, lines 45-50 & col. 6, lines 1-20. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar with the teachings of Ayyagari using the phased array antenna, at least for the known benefit of a simpler design, other than the parabolic antennas optionally used in Sklar.

'a direct broadcast satellite receiver adapted to process a first RF signal corresponding to the first broadcast satellite signal received by the electronically-pointable antenna to produce at least one of audio, video and data' is met by Sklar, col. 5, lines 59-64 & col. 8, lines 63-67.

As for the additionally claimed, 'a closed-loop feedback system adapted to provided at least one output signal wherein the one dimensionally electronically pointable antenna is pointable in two-dimensions using at least one output signal from the closed-loop operation to receive the broadcast satellite signal', Sklar does not discuss any closed-loop operation. However, Eguchi, which is in the same field of endeavor discloses an antenna tracking system that is enabled to use both open-loop and closed-loop operation, col. 6, lines 55-67 & col. 7, lines

15-53. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar with the feature of closed-loop operation, at least for the advantage of controlling the antenna orientation, at least partially on the basis of the target signal receiving condition, as taught by Eguchi, col. 4, lines 50-65.

'a signal lock for automatically activating and deactivating the closed-loop system in response to the first broadcast satellite signal received by the one dimensionally electronically pointable antenna, such that the system is alternatively in closed-loop or open-loop operation' is met by the disclosure of Eguchi, that teaches closed-loop operation is activated and terminated based on the signal level, which meets that claimed subject matter, col. 2, lines 45-52; col. 5, lines 61-67; col. 6, lines 31-48 & col. 7, lines 21-32.

Considering claim 4, as pointed out in the rejection of claim 1, Ayyagari teaches the use of phased array antennas, col. 5, lines 45-50. Also see Eguchi, col. 4, lines 55-60.

Considering claim 5, the antenna 10 of Eguchi is disclosed to be substantially flat within a plane, see Fig. 1B. The angle that the antenna 10 of Eguchi points is relative to the plane.

Considering claim 6, electronic compass & tilt-sensor are necessarily included in the inertial navigation system, INS of Sklar, col. 8, lines 30-61.

Considering claim 8, the claimed technique of an open-loop control using GPS data, corresponds with subject matter mentioned above in the rejection of claim 1, and is likewise treated.

Considering claim 9, the disclosure of Eguchi of switching modes based on the detected signal strength, (col. 6, lines 20-35) reads on the claimed feature of 'detecting a first loss of the first broadcast satellite signal and to activate the open-loop operation'.

Considering claim 10, the closed loop operation also controls the turntable and look angle of the antenna system, see Fig. 3 & col. 6, lines 44-54.

Considering claim 14, regarding the claimed feature of storing the orbiting position of a satellite, Sklar teaches tracking the coordinates of the satellites 24 & 28, see col. 8, lines 29-67. Official Notice is taken that at the time the invention was made, memory for storing satellite information was old in the art. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar to store the known orbit of a satellite, at least for the desirable effect of enabling the IFE to plan programming so that passengers could be warned well in advance as to which broadcasts will be available for the duration of their flight.

Considering claim 15, the GPS system of Sklar meets the claimed subject matter.

Considering claim 16, see Sklar, col. 5, lines 59-65.

Considering claim 18, see Eguchi, col. 6, lines 10-35.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, Ayyagari & Eguchi, further in view of Donahue, (U.S. Pat # 5,526,022).

Considering claim 7, Sklar discusses orientating the airplane and controlling the antenna at least using the airplane navigational system, but does not teach using solid-state electromagnetic field sensor and fluid field sensor. However, Donahue teaches an orientation system with a wide applicability, (col. 14, lines 24-45) such as any automatic leveling device, robotic feedback control, and motorized moving equipment, which uses both the earth's magnetic field and a fluid tilt sensor in determining the desired orientation, see col. 3, lines 1-12; col. 7, lines 59-67 & col. 9, lines 11-31. It would have been obvious for one of ordinary skill in the art at the time the invention was filed, to operate the navigation system of Sklar using the electromagnetic field sensor and fluid tilt field sensor used in Donahue, at least for the desirable benefit of more accurately determining the proper orientation of a device, as taught by Donahue, col. 1, lines 45-49, which obviates the need to rely solely on the existence of a fixed object in determining the orientation of another object.

6. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, Ayyagari, Eguchi & Lazar, (U.S. Pat # 6,166,686).

Considering claim 13, Sklar discloses the use of well-known GPS system for orienteering, but does not disclose that the true north is also used. However, Lazar teaches utilizing the GPS to determine location and then deriving the true north using the magnetic north, Abstract; col. 3, lines 8-55 & col. 4, lines 5-51. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar, to determine the true north bearing for the known improvement of more effective orienteering, since there is often wide deviation between magnetic north, which is based on the earth's magnetic field lines, and can be found with a compass, and 'true north', which is needed when reading a map to navigate to another object, as taught by Lazar, col. 1, lines 10-55.

Allowable Subject Matter

7. Claims 2-3 & 19-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) Wehner RF beam pointing antenna using phased array antenna.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

or faxed to:
(571) 273-8300, (for formal communications intended for entry)
Or:
(571) 273-7290 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reuben M. Brown whose telephone number is (571) 272-7290. The examiner can normally be reached on M-F(8:30-6:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (571) 272-7331. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications and After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Chris Kelley/
Supervisory Patent Examiner, Art Unit 2623